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ABSTRACT

This study discusses the importance of comprehension in reading and describes a tool for measuring reading comprehension according to an individual reader's "structures of meaning." The procedure for developing a visual representation of this structure involves three distinct steps. After reading the text, student and teacher employ techniques, such as free association and brainstorming, to discover the items of meaning for the student. Successive sorting of the items, or the use of preset categories, then clarifies the relationships between the items. Finally, display techniques cluster items into distinct patterns of meaning. Once this process is accomplished, the teacher and student use external criteria to evaluate the meaning attribution. The study concludes that this method is valuable in providing the reader with new insights into the thoughts and meanings of individual authors. (MAI)



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# IS COMPREHENSION THE PURPOSE OF READING?

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## IS COMPREHENSION THE PURPOSE OF READING?

Comprehension in reading is the process of sampling, searching and selecting the hieroglyphics on a page to attribute meaning to them. Different purposes of reading and different ways of processing the linear strings of words, sentences and paragraphs, enable individuals to attribute a wide variety of meaning to the same text. This eyeball to print interaction, whereby personal meaning is generated, has not been given the attention it merits in the curricula of our primary and secondary schools. The Bullock report alerts us to this and recommends the implementation of comprehensive programmes for developing competence in reading comprehension throughout a child's school life. That our educational system has failed to provide an effective programme for encouraging reading competency is evident all around us. Students at colleges of higher education complain that they are disadvantaged by their ineffective reading skills and confess that they cannot cope with the vast resource of print which is a major part of their learning diet. Thousands of illiterate adults of average and above average IQ cope by developing avoidance strategies, thus hiding their disability. Others have become alienated from the 'printed society' and have opted out.

Many professionals in a wide variety of employment situations feel the need to improve their reading skills. Commercial courses capitalise on this need but a comprehensive survey of the programmes they offer shows the narrow terms in which competent performance is defined. (1) Emphasis is given to speed at the expense of comprehension in a wider sense.

Why has the effective development of reading competence been virtually ignored in the classroom? In general, it can be said that

neither the technology nor the theoretical framework within which reading-for-learning could be adequately taught, has been available. Despite the wealth of literature on the topic, the psychological data available is too inadequate and therefore there is no basis on which to develop a valid, reliable comprehensive model of the reading process. In the absence of such a model, no systematic programme for effecting change and improvement in competency is possible. What we have is, at best, a series of random, pragmatic, partial approaches. At worst, we have completely ignored the problem.

Throughout our educational institutions emphasis has been given to the product of comprehension, rather than to the process of comprehending. Teachers assume that information about the process itself can be inferred from the written or oral outcomes, yet every sensitive teacher knows that such inferences are not only misleading but can be positively dangerous. The criteria against which the teacher evaluates the product of the reader's comprehension may not be those which the reader himself uses when he is comprehending. When a teacher indicates that a pupil has failed he may in reality have successfully tackled a different task. The fact that the task appears trivial or bizarre does not allow us to avoid the implications. Individual learners interpret a reading assignment in uniquely different ways. Despite the best of intentions, teachers cannot get into the learner's head, they cannot predict exactly how the learner interprets a particular reading task, except in the very simplest fact-finding exercises. Not only is this the case, but most learners are not aware of their own intentions, nor how they propose to

implement these. They may, in very general terms, say that they are reading 'to understand', or say that they are going to 'skip through once' and then 'go through carefully', but beyond this very crude level of process description, they are blind.

In our research we have found that a useful approach to this dilemma is to consider comprehension as part of the process of learning.

Comprehension as Learning

Jahoda and Thomas have distinguished three types of learning. (2) Learning is an inference made from changes in behaviour and experience. Such inferences can be made from three different positions. The teacher can infer what learning has taken place according to some pre-determined expectations. The learner can infer in how far he has succeeded in achieving his own pre-stated purposes and both learner and teacher may retrospectively value a change which was unintended. Type A learning is the inference made by the teacher in terms of what he expects the learner to learn. Almost all academic learning is defined in this way. Reading comprehension tests assess what it is that the teacher, experimenter, or test designer, thinks the reader should learn from the text. In order to by systematic, tests incorporate items which are unambiguous and easy to mark. This degrades the process of comprehension into a fairly mundane fact-finding activity. There are a variety of taxonomies of learning; Bloom, Barrett, Gagné and Melton, have all put forward their ideas about the types and categories of learning that can be identified. Latterly, such taxonomies have been influential in the development of Reading Comprehension Tests. All of them assume a Type A stance, but even within this restricted view the measures of comprehension occupy only a small

segment of the total set of alternatives which individuals are capable of generating. Comprehension, as a learning process, is probably only adequately displayed when the learner has to conversationally justify how he got to grips with the whole structure of text, an article, a chapter in a book or a section out of a magazine or a newspaper.

A second way of looking at learning is to think in terms of the learner. What is the learner's purpose and how well does he achieve his own purposes? The inferences drawn about learning on this basis may differ considerably from those drawn from the point of view of the teacher. Learning Type B is inferred from the learner's point of view. It poses a rather more difficult problem of assessment. Prior to the activity the learner cannot know the content of the material that he is setting out to learn and cannot, therefore, prospectively design a test which would adequately assess how well he has achieved his purpose. Often the position of the teacher and the learner changes as a result of the teaching/learning process and their view of the purpose and criteria for assessment is consequently adjusted. Type C learning is an inference made retrospectively in the light of the learning experience, when both purpose and outcome can be fully articulated.

In practice this presents difficulty of assessment with the traditional framework. The classical essay type or free response question is obviously designed to meet this more open-ended learning experience. But hidden between the lines lies a wealth of personal meaning attribution, which is very often never recognised by the teacher, however hard he tries to enter into a Type C type of assessment.

The only way out of this dilemma is for the teacher and learner to work together creating an encounter whereby the dynamic development of purpose and the criteria for the evaluation of the process of meaning attribution can be made explicit. The difficulties involved in designing tests which measure the quality of individual reading comprehension as well as the universal lack of procedures for a combined teacher/learner negotiation within a Type C framework, explains why in practice, teachers over and over again revert to the Type A approach.

Type A definitions mix two different problems of learning. If the learner is skilled but is pursuing a purpose which is radically different from that of the teacher, the teacher's assessment of what he is doing may indicate a very poor learning performance. If the teacher then infers that the learner is unskilled and feeds this back to the learner, he or she may become alienated and disgruntled, because his problem is not one of skill but one of negotiating the similarities and differences between the directions in which the teacher wants to go and the directions in which he wants to go of his own accord. Comprehending is understanding and understanding is essentially a question of coming to grips with a topic in one's own terms. There is obviously a question of how well those terms map on to the intentions of the teacher or the institution, but that is a separate question, it's a question of purpose, loyalty and clarification of one's vocational or educational directions. It's certainly not a question of comprehending.

How then are we to approach to problem of helping children and adults to develop their own capacity to learn and thus the process of reading for comprehension?

Readers fail to become effective versatile learners for three basic reasons:-

i) They are unable to formulate adequate operational purposes and therefore read in a rather vaguely orientated or non-specific way.

ii) They are unaware of the ways in which they read. At best they have a crude idea of sometimes skimming, scanning, sometimes reading carefully, and sometimes going back and looking at something. But most people are unable to control this and believe that the process of reading happens to them as they get at the meaning in the text, rather than being something which they can develop and use as a versatile learning skill.

iii) They are unable to assess the quality of the learning outcome which is achieved during reading. Most readers will give only very vague and evasive answers if asked what exactly they have learnt when they put down a book. The whole question of understanding and being able to personally assess one's own learning outcomes, is hardly ever examined in the educational situation. The whole process of assessment is handed over to the teacher and the learner becomes a closely supervised worker at the task of extracting meaning from, or attributing meaning to the text.

The effective reader for learning is able to articulate a wide variety of different purposes, is able to draw on a wide variety of different strategies and tactics in reading. He is also able to

assess his learning outcomes in a wide variety of ways and he is capable of being aware of any or all of these processes at the various levels of interaction with a text, from words through sentences to paragraphs to the whole meaning of an article. He is, in fact, an expert at controlling the whole process of learning by reading.

Learning-to-Learn

The Centre for the Study of Human Learning has over a period of years developed a variety of tools and a conversational methodology for approaching this problem of helping people to learn to read-for-learning, i.e. for exploring the process of comprehending.

Firstly, a simple Reading Recorder was developed. (3) It enables the reader to see exactly how he has moved his eyes over the text. It shows him where he hesitates, the rate at which he is reading; it shows his change of pace, where he goes back or skips forward. It maps out on an almost line-by-line basis exactly how the reader has spent his time in interacting with the black hieroglyphics on the page.

Having found that the reading process could be recorded, and a reader's strategies identified (4), the next question was how to assess the outcomes of reading. A Flow Diagram Technique was developed in which the 'structure of meaning' in the text could be expressed (5). It was important to separate the meaning of a text from the syntactic structure of the sentences. By assigning categories such as 'Main Ideas', 'Qualifiers', and 'Elaborators' and by numbering the 'Meaning Items' in a text, it becomes possible to classify each item and show by means of arrows the relationships between them. To begin with, a panel of experts examined the text in detail

and mapped out how meaning ran through the paragraphs and the sentences on the page. However, as we began to use this technique two things became clear. Firstly, experts can comprehend different meanings from the same text, differing in their views about exactly what the meaning structure of a text might be. Secondly, we began to realise that the Flow Diagram Technique was a very useful way of expressing what had been understood whilst reading. Thus, from being a multi-dimensional way of describing the 'literal' meaning of the text, we recognised that it was a way of describing the personal meaning that one has attributed to it. Having made this subjective jump, it was realised that the Flow Diagram Technique was in itself a way of expressing what had been comprehended. It can be used to represent the pattern of meanings in a person's head in a visual articulated form. Thus, separated from the meaning attributing process, one could stand back and review it in terms of how well it expressed the successful outcome to one's purpose.

Having thus been able to record the process of reading and externalise the outcomes of reading expressed in personal terms, it was possible to begin to examine how strategies and outcomes relate one to another. The results were interesting. Some people have very little idea of how strategy relates to purpose, others have more explicit assumptions, but are unable to assess their own success in realistic terms. Gradually it became apparent that meaning was best understood in relativistic terms and that comprehension is a process of negotiation between the reader and the text, whereby structures of meaning are created in his head.

At this phase in the research programme, it was realised that whilst the combination of the Flow Diagram Technique and the Reading Recorder was extremely powerful for sharpening awareness of the process of reading-for-learning, there were also serious limitations. The Flow Diagram is constrained by the need to assign a specific number of categories of description for classifying items. In addition, the items literally relate to parts of the author's exposition, demanding a 'text fixicity'. The display of a reader's attribution of meaning by means of a Flow Diagram, confines the reader too closely to the text, and inhibits the exploration of the reader's own ideas. The read record must be linked to the reader's purpose and his criteria for assessing the quality of the outcome, in order to be meaningful in a Type C learning framework. It needed therefore to be combined with a personally-orientated open-ended tool designed to capture fully the process of individual meaning attribution. This entailed the development of procedures for displaying 'structures of meaning' which a reader generates during the eyeball to print interaction.

Open-Ended Process Tool for Measuring Type C Learning

The problem with assessing the 'structures of meaning' which are generated during reading is that they first occur in the head and gut. In this whole-self activity, the outcome is some change in the reader's thoughts and feelings. This becomes represented in the reader's store of uniquely personal knowing. Except in the most formal reading, the reader is only partially aware of the range and richness of the 'structures of meaning' he generates. Even if he attends to it, he experiences great difficulty in reconstructing the fullness of the reading event, unaided. Left in his head, it is easy for the reader to delude himself,

believing that his understanding was better than it actually was or worse.

How can the 'structures of meaning' be externalised, so that a more systematic review becomes possible? This must be achieved sensitively and rigorously with the minimum of 'pollution' from others' heads. The development of a tool to meet this requirement represents an important move away from standardised tests, criterion referenced tests and informal teacher tests, which measure Type A learning. Such tests are more concerned with selection and prediction of abilities and are for teacher diagnosis rather than learner diagnosis. A Type C tool for measuring learner-based comprehension becomes an essential instrument for individually based informal reading inventories (IRI) which are currently being introduced into the schools' curriculum.

The procedure for the visual representation of 'structures of meaning' involves:-

eliciting items of meaning,

defining the relationship between items,

and displaying the pattern.

This different approach to express meaning in contrast with essays and other linear expositions, pulls the reader out of a fixed acceptance of ideas in language and challenges him to think anew. Aided by the teacher/tutor the reader becomes more aware of the complexity of structure in even the simplest meanings.

The procedure can be summarised briefly as follows. A more detailed algorithm is available for further reference (6).

Eliciting the Items of Meaning: Step One

Having read the text, various techniques from free association, oblique and bizarre associations, divergent, convergent and deductive thinking and brain storming, can be recruited by the reader and teacher to generate 'items of meaning'. The choice of elicitation technique depends on the purpose and on the text. 'Trying to remember' is simply not enough. Type A learning experiences, lead to the development of intuitive, almost automatic internal checking processes, which suppress many potential thoughts. Learners are cut off from much of their own internal resource. This is true at the direct recall level and the more wider ranging level that is the basis of creative work. The greater the repertoire of techniques for eliciting items, the greater the accessing possibilities into the potentially rich internal resource. The items of meaning elicited define the 'universe of discourse' within which dimensions of meaning can be constructed.

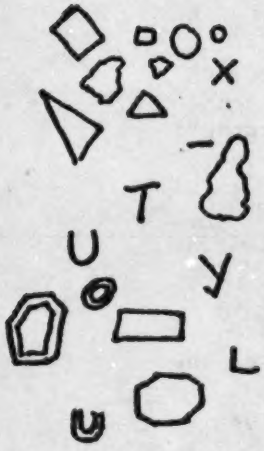
Defining the Relationships between the Items: Step Two

By comparing every item with every other item, or by successive sorting of the items or by using pre-set categories, relationships can be drawn between the items. In asking 'what goes with what' various dimensions of pattern emerge.

Displaying the Pattern: Step Three

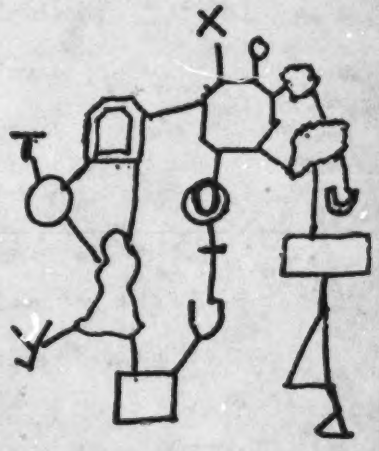
Different display techniques illustrate the various ways in which 'structures of meaning' can be made explicit. Again the choice of technique is influenced by the reader's purpose and text. One way of drawing up a structure is in the form of a 'Net'.

A Net of items will show how items of meaning cluster into distinct patterns of meaning. Nodes of meaning focus the dimensions of thought within the structure. Such nodes can be categorised so that the node represents an item of meaning at another level of the hierarchy of structure. The relationships between the nodes can also be specified. The three steps in the sequence can be illustrated as follows.



20 items of meaning elicited.
Step 1

defining relationships.
Step 2



displaying a pattern in a net.
Step 3

Once the items of meaning and the relationships between them are made explicit, in the form of a visual display, the reader alone or the reader and teacher together can begin to review the process of meaning attribution. How does the 'structure of meaning' relate to the purpose of reading? How does it relate to strategy? Does it reflect any mismatch between the reader's original purpose and a retrospectively defined purpose? How well does the structure reflect the reader's purpose? Would a further sampling of the text produce a better outcome, if so, what tactics would be usefully employed? These are only some of the questions which can be asked in reviewing the quality of the reader's comprehension. The sequence of displaying and assessing structures of meaning is summarised in the Flow Diagram (Fig.1).

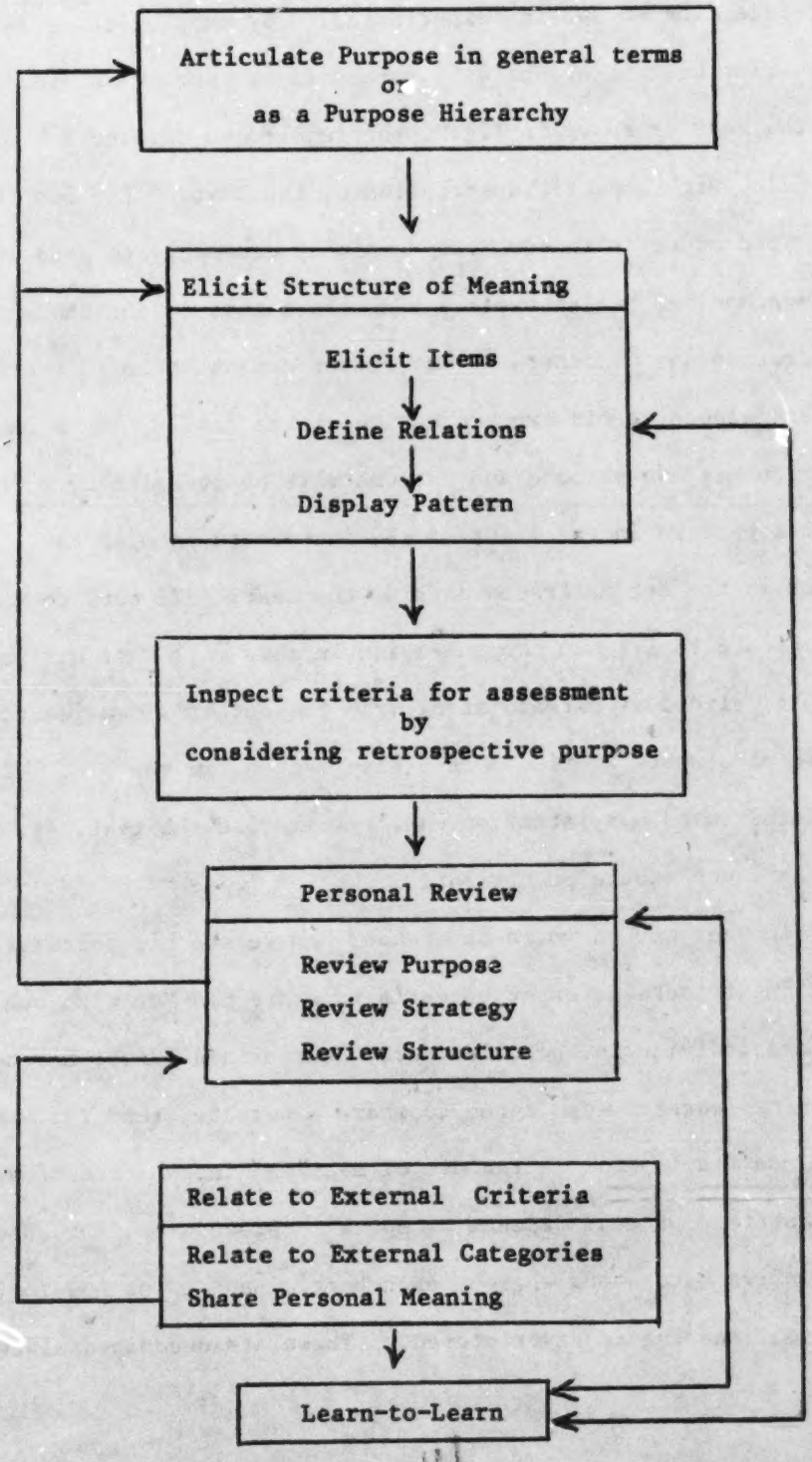


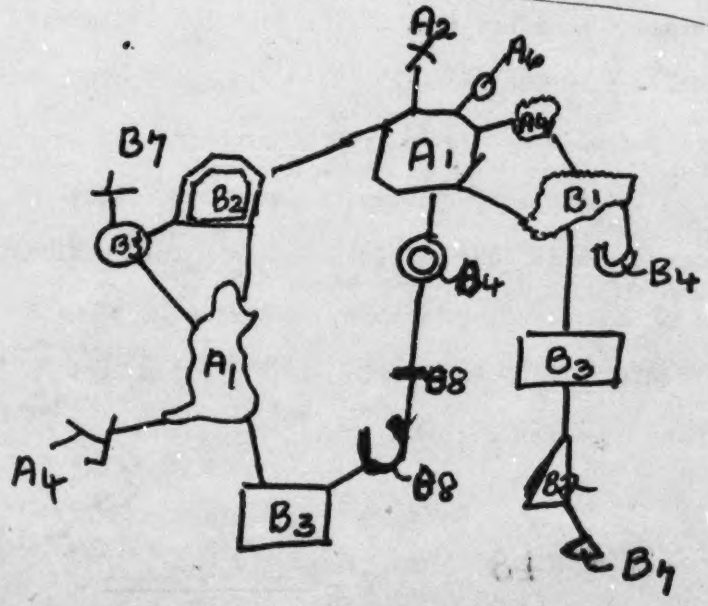

Fig.1 AN ALGORITHM FOR DISPLAYING AND ASSESSING STRUCTURES OF MEANING

Relating the emergent pattern to external criteria, can provide the reader with new insights. He can begin to relate his personal understanding to outside experiences. By mapping the classified items in a Flow Diagram of the text (prepared by teacher or specialist) on to the Net, as shown in Fig.2, the reader can compare his own understanding with a public description of the text. The importance of this procedure is that whilst remaining centrally located in his understanding, he can explore and relate this to the thoughts and understandings of others. The reader can use this to sharpen the effectiveness of his own processing of the text. Any mismatch between his own purpose and outcome will be revealed by an examination of his pattern in the light of the introduced categories. Can the items in the Net be traced back to the text? If not, do they contribute to his own comprehension in some way? If his purpose can be defined as extrapolating from the author's own ideas, then he should expect to find more B than A items in the Net. If on the other hand his intention was to summarise the text, $A_1$, $A_2$ and $A_3$ items should predominate.

Another way in which the reader can relate his personal understanding to outside experiences is to share his Net with others. Two or more individuals, peer learners, learner and tutor, teacher and a group of learners, can agree to share a purpose, read the same text and each can display his 'structure of meaning' in the form of a Net. This sharing process depends on specific procedures, for ensuring a creative encounter, whereby each participant gains new insights and personal meaning is restructured. These are described elsewhere (7).

| | | Items in the Text | Imagined Items |
|---|---|---|---|
| Main Theme | Main Ideas | $A_1$ | $B_1$ |
| | Inferences | $A_2$ | $B_2$ |
| | Evaluations | $A_3$ | $B_3$ |
| Indications | Meta-comment | $A_4$ | $B_4$ |
| | Reader Contact | $A_5$ | $B_5$ |
| | Mood | $A_6$ | $B_6$ |
| Qualifications | Justifications Definitions | $A_7$ | $B_7$ |
| Elaborations | Paraphrase, Examples, dates, detailed events | $A_8$ | $B_8$ |

Fig.2 A SYSTEM FOR CLASSIFYING ITEMS IN A READER'S NET *




THE NET

* The Reader's Purpose: To relate the author's ideas to issues beyond those dealt with in the text.

Learning-to-Learn

Human beings have an infinite capacity for generating new structures of meaning, through their acts of construction on the world, reading being one special case. The elicitation of these structures in the form of visible displays, opens up a wide range of learning experiences. The displays act as a 'mirror'. In contemplating this reflection of personal meaning, the learner becomes more aware of the richness of the meaning in his head. The mirror reflects the learner's own process and he can use this 'psychofeedback' for developing his own language about learning. He is acting as a 'scientist' observing and interpreting his own learning. The science is that of learning to learn.

The learner can explore how structures of meaning are constructed, how past experience, values and beliefs, needs and purposes, as well as strategies and tactics, all contribute to these constructions. 'Purpose', 'strategy' and 'outcome' provide the context within which structures of meaning can be evaluated. He thus learns to review his learning competency.

The self-organised learner is in a better position to learn effectively from future interactions with his world, with other people, events and things. Not only by reading can he practise his self-organised approach to learning, but listening, writing, discussing and doing. Our experience is that he cannot achieve this unaided. But by getting into a 'conversation' with his tutor in ways which enable him to experience Type C learning he rapidly learns to internalise the dialogues which foster learning-to-learn (8).

In educational practice such creative encounters depend on the flair and intuitive skills of few gifted teachers. Through action research projects carried out in schools, colleges of higher education and industry, the techniques described in this paper and others reported elsewhere (9) have been recruited for the rigorous analysis and systemisation of Type C learning interactions. A conversational methodology has been developed and a science of Learning Conversations has been formulated (8). Such 'conversations' are controlled, purposeful and highly skilled. In the early stages the responsibility lies almost entirely with the tutor, who initiates and monitors the 'conversational events'. These depend on the use of awareness-raising tools and procedures for reflecting the learning process back to the learner. By offering personal support and sustained guidance the learner gradually moves towards greater self-organisation as he or she develops competence in controlling the Learning Conversation. The learner becomes his or her own tutor.

Reading as a Learning Conversation: Type C Comprehension

It is useful to consider the process of reading as a Learning Conversation, between the individual and the text. To be more precise, the conversation goes on in the reader's head and gut. One participant in the conversation stays closely with the sequence of words on the page (literal comprehension), the other takes off imaginatively from the words, intuitively interpreting, criticising, analysing and extrapolating (higher levels of comprehension). The interaction between these two components in the conversation is the essence of comprehension. Extreme inbalance in either direction can produce one or other of the kinds of malaise from which we the products of our educational system suffer, either as overconformist or

as undisciplined thinkers. Within this conversational framework Type A Learning can be seen as leading to 'Type A Comprehension' and to conformist thinking. This is what Reading Tests measure, but reading-for-learning is about more. If comprehension is about what reading achieves, then it is Type C Comprehension, where the terms for assessing meaning are negotiated with the learner. Type C Comprehension frees the learner, so that aided 'conversationally' by his tutor, he can develop his self-organising capacity and reading-for-learning competency.

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